



REMARKS

Support of the claims

Claims 9, 12, 15, 18, 21 and 22-29 are pending in the present application. Claims 1-8, 10-11, 13-14, 16-17 and 19-20 are canceled. Claims 9, 12, 15, 18 and 21 are withdrawn. Claims 9, 12, 15, 18 and 21 are amended to depend from pending claims. Claims 22-29 are new. Support for new claim 22 is found in original claims 1, 8 and on page 5 at line 15 in the specification as filed. Support for new claim 23 is found in original claims 10 and 11. Support for new claim 24 is found in original claims 13 and 14. Support for new claim 25 is found in original claims 16 and 17. Support for new claim 26 is found in original claims 19 and 20. Support for new claim 27 is found in original claim 2. Support for new claim 28 corresponds to original claim 6. Support for new claim 29 corresponds to original claim 7. No new matter is entered by way of this amendment.

Priority

The Examiner has required that Applicants submit a certified copy of the "priority document". The present application is a national stage application of PCT/JP00/05213. Accordingly, this PCT International Application is not a "foreign priority" application and a certified copy is not required. Applicants respectfully request this objection be withdrawn.

Drawings

Applicants acknowledge that the drawings in the present application are accepted by the Examiner.

Objections to the Claims

Claims 8, 11, 14, 17 and 20 are objected to because the claims allegedly start with an improper article and allegedly are of improper dependent form. Applicants have amended the claims to correct the assertedly improper articles and dependencies. Accordingly, Applicants respectfully request the objections be reconsidered and withdrawn.

Double Patenting

Claims 1-5, 8, 10, 11, 13-14, 16-17, and 19-20 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8-12, 14-15, 17-18, 20-21, and 23-24 of copending US Patent Application No. 10/089,695 ('695). This rejection is provisional. Thus, until claims issue from the '695 application, no action is required on the part of Applicants. (See, M.P.E.P. § 804, I, A, 1).

Claim Rejections under 35 USC §112, first paragraph

Claims 1-8, 10-11, 13-14, 16-17 and 19-20 are rejected under 35 USC §112, first paragraph, as based on a disclosure that is not enabling. Applicants respectfully traverse.

Specifically, the Examiner asserts that the claims omit features that are taught as critical in the specification; thus the claims are not enabled by the disclosure. The Examiner asserts, *inter alia*, that the type and size of the plant starting material, the speed of the centrifuge, the manner of co-culturing the *Agrobacterium* with plant cells or tissues and the regeneration of the transformed cells are essential steps needed to practice the invention; therefore, these steps need to be present in the claims. Applicants respectfully disagree.

Claim 22 recites "[a] method for transforming a plant, plant cell, or plant tissue with a desired gene comprising centrifuging the plant cell, the plant tissue or the plant; under a centrifugal acceleration of 1000G to 150,000G and contacting the plant, the plant cell, or the plant tissue with *Agrobacterium*, wherein said *Agrobacterium* includes the desired gene and wherein said centrifugation promotes efficiency of the transformation of the desired gene into said plant cell, tissue or plant."

Applicants submit that this claim is enabled by the specification and that no essential steps are missing from claim 22. A skilled artisan can readily understand how to make and use the invention as recited in claim 22 and dependents thereon. Accordingly, Applicants respectfully request the rejection be reconsidered and withdrawn.

Claim Rejections under 35 USC §112, second paragraph

Claims 11 and 14 are rejected under 35 USC §112, second paragraph, as being indefinite. Specifically, the Examiner asserts that claim 11 lacks antecedent basis for its recitation of “the method according to claim 9”, and claim 14 lacks antecedent basis for its recitation of “the method according to claim 11.” Claims 23 and 24, which correspond to original claims 11 and 14 are amended to recite proper antecedent basis. Therefore, Applicants respectfully request this rejection be reconsidered and withdrawn.

Claim Rejections under 35 USC §102

Forreiter

Claims 1, 3, 4, 6, 10 and 11 are rejected under 35 USC §102(b) as being anticipated by Forreiter *et al.* *The Plant Cell*, 9: 2171-2181 (1997), (“Forreiter”). Applicants respectfully traverse.

Claim 22 recites a method for transforming a plant, plant cell, or plant tissue with a desired gene comprising centrifuging the plant cell, the plant tissue or the plant; under a centrifugal acceleration of 1000G to 150,000G and contacting the plant, the plant cell, or the plant tissue with *Agrobacterium*, wherein said *Agrobacterium* includes the desired gene and wherein said centrifugation promotes efficiency of the transformation of the desired gene into said plant cell, tissue or plant.

In contrast, the Forreiter reference discloses centrifuging agrobacteria, and then contacting *Arabidopsis* cells with the agrobacteria. After 48 hours, the *Arabidopsis* cells are washed, resuspended in culture media and collected by centrifugation at an acceleration speed of 600G. Thus, the Forreiter reference fails to disclose all of the elements of the instant claims.

In order to anticipate a claim, the reference must disclose each and every element of the claim. The Forreiter reference fails to disclose centrifugation acceleration in the range of "1000G to 150,000G.. wherein said centrifugation promotes efficiency of the transformation of the desired gene into said plant cell, tissue or plant." Therefore, the Forreiter reference does not anticipate claim 22 or dependents thereon. Claims 1, 3, 4, 6, 10 and 11 are canceled. Accordingly, Applicants respectfully request the rejection be reconsidered and withdrawn.

US Patent No. 6,362,393 ('393)

Claims 1-3, 6, 8, 10, 11, 13-14, 16-17 and 19-20 are rejected under 35 USC §102(b) as being anticipated by US Patent No. 6,362,393 to Konzak *et al.* ('393). Applicants respectfully traverse.

In contrast to the present invention as recited above, the '393 reference discloses a method of producing wheat plants from wheat microspores. The '393 method comprises selecting wheat spikes containing microspores, isolating the microspores by centrifugation at 100G for three minutes, subjecting the microspores to temperature stress, and producing embryoids from the microspores. The microspores may, optionally, be transformed with a desired gene, and centrifugation of the plant sample may be performed before, during or after contact with *Agrobacterium* for transformation. Thus, the '393 reference fails to disclose all of the elements of the instant claims.

In order to anticipate a claim, the reference must disclose each and every element of the claim. The '393 reference fails to disclose centrifugation acceleration in the range of "1000G to 150,000G...wherein said centrifugation promotes efficiency of the transformation of the desired gene into said plant cell, tissue or plant." Therefore, the '393 reference does not anticipate claim 22 or dependents thereon. Claims 1, 3, 4, 6, 10 and 11 are canceled. Accordingly, Applicants respectfully request the rejection be reconsidered and withdrawn.

Claim Rejections under 35 USC 103

Claims 1-8, 10-11, 13-14, 16-17, and 19-20 are rejected under 35 USC §103(a) as being obvious over the '393 reference in view of the Forreiter reference. Applicants respectfully traverse.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As stated above, neither the '393 reference nor the Forreiter reference alone or in combination teach or suggest the claim element of "centrifuging the plant, plant cells or plant tissues under a centrifugal acceleration of 1000G to 150,000G..wherein said centrifugation promotes efficiency of the transformation of the desired gene into said plant cell, tissue or plant." Therefore, claim 22 is not obvious over the combination of the '393 reference and Forreiter reference.

However, the Examiner asserts that even though the centrifugal acceleration is not taught in the combined references, the rate and time of centrifugation is a 'result effective parameter' that a person of ordinary skill in the art would routinely optimize. Thus, the Examiner asserts that absent some demonstration of unexpected results from the claimed parameters, this optimization of rate and time of centrifugation would have been obvious at the time of Applicants' invention.

Applicants submit that unexpected results are achieved by increasing the centrifugal acceleration to between 1000G and 150,000G. That is, transformation efficiency is unexpectedly promoted by carrying out centrifugation of plants samples at centrifugal accelerations of 1000G to 150,000G. Applicants submit that a skilled artisan would not have expected these results based on the teachings and suggestions in the cited references. The '393 reference and the Forreiter reference use centrifugation speeds of less than 1000G to merely separate mixtures. Thus, Applicants contend that a skilled artisan would not have expected transformation efficiency to be significantly improved by using centrifugal acceleration in the range of 1000G to 150,000G. Therefore, claim 22 and its dependents thereon are not obvious over the combination of the '393 reference and the Forreiter reference. Accordingly, Applicants respectfully request the rejection be reconsidered and withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Gerald M. Murphy, Jr., Reg. No. 28,977 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By *maan ln 0040.064*

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